

Poly(*m*-phenylene isophthalate)의 제조와 특성

김영훈, 손태원, 이광순, 강병열, 정민기
영남대학교 섬유패션학부

Preparation and Characteristics of Poly(*m*-phenylene isophthalate)

Young-Hun Kim, Tae-Won Son, Kwang-Soon Lee, Byoung-Youl Kang and Min-Gi Jeong
School of Textiles, Yeungnam University, Gyongsan, Korea

1. Introduction

The synthesis and properties of aromatic polyesters have been extensively studied recently following the observation of the excellent physical and mechanical properties of thermotropic aromatic polyesters noted in both academia and industry¹⁻³. Most aromatic polyesters are composed entirely of rigid, linear, aromatic ester units and as a result, they have high melting temperatures.

These transition temperatures can be lowered to melt processable range through the introduction of flexible aliphatic units, but this possibility is not always desirable. Such segments will inherently weaken the structure, adversely affecting the strength and stiffness properties. Alternatively, either structural modifications with substituents on the aromatic rings, such as the use of phenylhydroquinone, or the inclusion of comonomers of different size, or the use of *meta*-substituted units, can also decrease the polyester melting point without adversely affecting the mechanical properties⁴. Some of these materials are presently commercially available; Hoechst-Celanese's Vectra and Amoco's Xydar are representative examples. These compositions are aromatic copolyesters and have many unique processing and mechanical properties resulting from their ability to form molecular order in the melt.

This study reports the synthesis and properties of aromatic polyesters consisting of isophthalic acid(IPA) and resorcinol diacetate(RDA) by melt polymerization.

Acknowledgement : This work has been supported by both Regional Research Center(RRC) at Yeungnam University and Korea Industrial Technology Foundation(KOTEF). The authors gratefully acknowledge the continually financial support and encouragement provided by both RRC and KOTEF during the course of this study.

Reference

1. P. K. Bhowmik, E. D. T. Atkins and R. W. Lenz, "Crystalline and Liquid Crystalline Properties of Polyesters of Phenyl-Substituted 4,4'-Biphenol. 2. Copolymers with 4-Hydroxybenzoic Acid", *Macromolecules*, **26**, pp447-451(1993).
2. R. W. Lenz and J. I. Jin, "Liquid Crystal Polymers. 3. Thermotropic Rigid Aromatic Copolyesters with Bisphenol Spacers", *Macromolecules* **14**, pp1405-1411(1981).